

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band) ET Docket No. 13-49; FCC 16-68
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Comments of Panasonic Corporation of North America in the above captioned proceeding to Refresh the Record in the Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band.

SUMMARY

Panasonic Corporation of North America (“Panasonic”) hereby submits comments in the above captioned Public Notice (“Notice”)¹ issued by the Federal Communications Commission (“Commission”) to seek to refresh the record in the Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band proceeding. Panasonic appreciates the opportunity to respond to the Federal Communications Commission’s (FCC) Public Notice dated June 1, 2016 (FCC 16-68)(the “PN”) to update and refresh the record on the use of U-NII devices in and near the 5.9 GHz band designated for Dedicated Short Range Communications (DSRC). Panasonic urges the Commission to preserve the 5.9 GHz band and its channelization as designed for DSRC safety-of-life and mobility applications that have been in development for over a decade. Any spectrum-sharing protocols must fully accommodate existing and planned deployments of DSRC applications, and thorough testing must be done to determine whether new unlicensed devices can safely share the band before any such devices are approved. We especially caution against any proposal calling for re-channelization of the 5.9 GHz band that will impede the development and deployment of passenger and pedestrian traffic safety solutions.

STATEMENT OF INTEREST

Panasonic provides a broad array of digital and other electronics products and services for consumer, business, and industrial use. Panasonic is the principal North American subsidiary of Osaka, Japan-based

¹ Panasonic submits these comments in response to the Public Notice issued by the Federal Communications Commission (“FCC” or “Commission”) in the above-referenced proceeding: Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band, FCC 16-68 (rel. released June 1, 2016) (“Notice”).

Panasonic Corporation and the hub of the Company's U.S. branding, marketing, sales, service and R&D operations. Paramount in Panasonic's corporate philosophy is the understanding that the customer comes first, and that a company is indebted to society for its existence. Based on these principles, Panasonic strives to contribute to society, and to develop products and services that meet the needs of all its customers.

Panasonic Automotive Systems Company of America, a Division of Panasonic Corporation of North America, is a supplier of DSRC on-board units (OBU's) for vehicles to U.S.-based and global automotive manufacturers, and is known as a market leader in automotive infotainment, connectivity system solutions and automotive sensors and other components. Panasonic markets DSRC OBU devices to automakers and has demonstrated solutions allowing for vehicle-to-vehicle ("V2V") and vehicle to infrastructure ("V2I") and vehicle-to-person ("V2P") applications using Dedicated Short Range Communication (DSRC), supporting the full gamut of "V2X" applications.²

Panasonic Enterprise Solutions Company, also a Division of Panasonic Corporation of North America, has committed to introduce and implement transformational V2V, V2I, and V2X technology using advanced DSRC solutions in Colorado along the I-70 and I-25 corridors in partnership with the Colorado of Transportation (CDOT). Panasonic also offered support³ for the City of Denver's Smart Cities Challenge Grant Application⁴ which proposed to:

- Establish the nation's first high-tech freight efficiency corridor in North Denver – encompassing I-70, I-76 and I-25 – using dedicated short-range communications (DSRC) technology that will provide travel time reliability for trucks and keep haulers out of neighborhoods.
- Deploy DSRC and other advanced and dynamic traffic-signal technologies to improve traffic flow on two of Denver's most congested arterials, Colorado Boulevard and Hampden Avenue.

Panasonic has been actively involved in Japan's deployment of DSRC, which has achieved measurable improvements to passenger safety, reduced traffic congestion and enabled new "smart city" applications. We believe that these technologies can help the United States achieve similar benefits.

² For examples, see: *Panasonic Showcases Automated Driving Technologies and Systems Using Big Data at the 21st ITS World Congress 2014* (September 15, 2014) available at: <http://news.panasonic.com/global/topics/2014/28876.html>

³ See: Letter to The Honorable Anthony Foxx, United States Secretary of Transportation, from Jim Doyle, President, Panasonic Enterprise Solution Company (January 27, 2016), available at: <http://www.denvergov.org/content/dam/denvergov/Portals/706/documents/denver-smart-city-challenge-grant-application.pdf>.

⁴ See an overview of Denver's Smart City Challenge Proposal, at: <http://www.denvergov.org/content/denvergov/en/transportation-mobility/smart-city.html>

DSRC IS ESSENTIAL FOR REDUCING TRAFFIC CONGESTION AND PREVENTING ACCIDENTS.

DSRC is a secure, reliable, and prompt transmission protocol for safety-of-life communications between vehicles, infrastructure, and pedestrians, especially for crash avoidance. The National Highway Traffic Safety Administration (NHTSA) has determined that DSRC will address up to 80% of all non-impaired light-vehicle accidents, saving thousands of lives.⁵ Through low latency communications, DSRC provides 360 degree situational awareness by receiving data from other vehicle sensors to effectively “see” around obstacles and warn drivers of dangers before they are visible to the naked eye. Furthermore, this technology can also communicate with intersections (e.g. traffic signals) and roadway infrastructure (e.g. warning of dangerous curves).

The situational awareness that DSRC provides is essential to achieving the goals of “Vision Zero”, a multi-national road traffic safety project that aims to reduce fatalities or serious injuries from road traffic that has been supported by investments in many major U.S. metropolitan areas. For example, Denver’s Mayor Michael B. Hancock has committed to invest \$750,000 for planning, enforcement and education in the city’s 2016 Budget to reduce fatal crashes consistently year-over-year.⁶

NHTSA has demonstrated that the need for technological solutions to the nation’s vehicle safety and traffic congestion problems are urgently needed. The agency’s recent report on traffic safety shows that “preliminary statistical projection of traffic fatalities for 2015 shows that an estimated 35,200 people died in motor vehicle traffic crashes. This represents an increase of about 7.7 percent as compared to the 32,675 fatalities that were reported to have occurred in 2014.”⁷ In 2015, U.S. Transportation Secretary Anthony R. Foxx released *Beyond Traffic 2045: Trends and Choices*, a comprehensive report on the major forces impacting our nation’s transportation systems.⁸ This report highlighted the significant challenges facing our nation related to aging infrastructure, energy use, highway safety, network congestion, and rising greenhouse gas emissions. The safety and traffic information applications provided by DSRC are necessary to address these urgent societal issues.

NHTSA is moving forward with a rulemaking to create a new Federal Motor Vehicle Safety Standard that will require all new vehicles to be equipped with DSRC technology.⁹ NHTSA’s notice of proposed rulemaking is

⁵ National Highway Traffic Safety Administration, Fact Sheet “*Vehicle-to-Vehicle Communication Technology*” 11078-101414-v2a at Page 3, 2014

⁶ See: *Vision Zero Denver*, available at: <http://www.denvergov.org/content/denvergov/en/transportation-mobility/vision-zero.html>

⁷ See: *Traffic Safety Facts, Early Estimate of Motor Vehicle Traffic Fatalities in 2015* (DOT HS 812 269, July 2016) available at: <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812269>

⁸ See: *Draft Beyond Traffic Framework*, available at: <https://www.transportation.gov/beyondtraffic>

⁹ Press Release, National Highway Traffic Safety Administration, *Transportation Sec. Foxx announces steps to accelerate road safety innovation* (May 13, 2015), available at: <http://www.nhtsa.gov/About+NHTSA/Press+Releases/2015/nhtsa-will-accelerate-v2v-efforts>

currently under review by the Office of Management and Budget. To support the NHTSA rulemaking, federal and private sector testing has been rigorously conducted. Some automakers have announced plans to equip passenger vehicles with DSRC in advance of a regulatory mandate.¹⁰ DSRC devices will also be retrofit onto existing vehicles, especially public and private sector fleets, greatly increasing the technology's penetration rate. These DSRC-enabled vehicles will support V2I and V2P applications which also offer tremendous safety benefits.

For these reasons, Panasonic believes that it is essential that the Commission act quickly to confirm an interference-free use of the 5.9 GHz band for DSRC. The FCC must maintain the current 5.9 GHz channel plan to realize the safety and transportation efficiency benefits provided by DSRC, and avoid squandering the investment (both private and government), research, development, testing, and progress achieved thus far. Re-channelization of the 5.9 GHz band would nullify the investments already made under the existing channel plan and potentially set back deployment DSRC in the United States by several years. Thorough testing is needed to demonstrate that any sharing of the spectrum with unlicensed Wi-Fi or other protocols will not interfere with the safety applications and low-latency communications essential to realize the societal benefits that technological advances in crash avoidance and traffic management will bring.

RE-CHANNELIZATION WOULD IMPAIR THE SAFETY BENEFITS OF V2X APPLICATIONS

The FCC should be very cautious in allowing spectrum sharing of the 5.9 GHz band, as this may impair reception of vital safety-of-life messages. V2V, V2I, and V2P applications have been developed on the assurance of the FCC's designated channel plan. *Every one of the other channels, except the essential control channel and 5 MHz separation, carry safety of life applications.*¹¹ While it is true that one channel, channel 172, is currently designated for V2V Basic Safety Message (BSM) communications, safety-critical communications will occur throughout the 5.9 GHz DSRC band. These include, without limitation, the following applications:

- Vehicle-to-vehicle collision warnings and controls
- Vulnerable road user (e.g., pedestrian) safety

¹⁰ See: *Cadillac to Introduce Advanced 'Intelligent and Connected' Vehicle Technologies on Select 2017 Models* (Sept. 9, 2014), available at:

<http://media.cadillac.com/media/us/en/cadillac/news.detail.html/content/Pages/news/us/en/2014/Sep/0907-its-overview.html>

¹¹ See, Transportation Research Board of the National Academies Letter Report, "Review of the Status of the Dedicated Short-Range Communications Technology and Applications [Draft] Report to Congress" available at: http://onlinepubs.trb.org/onlinepubs/reports/DSRC_April_28_2015.pdf. The report (page 8) notes that: "The committee also believes that V2V and V2I should be considered by FCC as a safety service. FCC Regulation 47 CFR Section 2.1 and International Telecommunication Union Radiocommunication Sector (ITU-R) 2012 Radio Regulations §1.59 both define safety service as "any radiocommunication service used permanently or temporarily for the safeguarding of human life and property." Usage of DSRC Channels 172, 178, and 184 appears to meet this definition, and planned uses of the remaining DSRC channels are also expected to meet this definition."

- Cooperative adaptive cruise control and platooning
- Red light violation warning
- Curve speed warning
- Emergency vehicle alert
- Signal preemption
- Cooperative merging¹²

It is important for the FCC to consider that the channels were created to support the performance, reliability and low-latency requirements of these applications as well as to support future development. Compressing what was intended for all seven channels into the upper 30 MHz could dramatically restrict the functionality of DSRC applications for V2V, V2I and V2P.¹³ Moreover, the current channelization separates the lower power BSM function in Channel 172 from the higher power public safety applications in Channel 184. Placing these functions in closer proximity, as the re-channelization plan proposed, would degrade and endanger the BSM.

Even without considering what may be an unacceptable loss in DSRC uses, re-channelization would require a substantial amount of DSRC system redesign and retesting to ensure that the new channelization plan could successfully support any DSRC applications. Redesign and retesting would cause significant delay in deployment of DSRC. Re-channelization would throw out existing research, negatively impact current and planned deployments, and delay DSRC's life-saving benefits. The FCC must not issue a new channel plan for 5.9 GHz to simply obtain more Wi-Fi spectrum to accommodate the explosion of video streaming. Everyone supports the concept of more Wi-Fi spectrum, but not at the cost of lives.

In short, re-channelization of the 5.9 GHz DSRC spectrum will significantly impair the ability of V2X systems to avoid accidents – thus saving lives – and impede the deployment of efficient transportation solutions.

¹² See, U.S. Department of Transportation, Connected Vehicle Applications: Safety (FHWA-JPO-16-241), <http://ntl.bts.gov/lib/56000/56200/56237/FHWA-JPO-16-241.pdf>, (2016)(describes 14 V2V applications, 14 different V2I applications and a separate V2P application for DSRC).

¹³ The Alliance of Automobile Manufacturers ex parte, ET Docket. No. 13-49, (May 9, 2016) "DSRC Myth vs. Facts", available at: <https://ecfsapi.fcc.gov/file/60001841106.pdf>, noting that: "There are many problems with the re-channelization proposal. Critical V2V safety messages would have to move to the upper band, disrupting the balance of the existing band plan. There they would be subjected to new sources of interference from high power public safety communication and immediately adjacent unlicensed transmissions. With re-channelization, other critical safety communications in the lower band would be subject to in-band interference from unlicensed transmissions aggressively using the band at the same time and place as DSRC. Furthermore, the DSRC communication in the lower band would be forced to use degraded 20 MHz channels, contrary to exhaustive research demonstrating the superiority of 10 MHz channels for the high mobility, high multipath DSRC environment. The forced use of 20 MHz channels would also make it impossible to deploy the same safety systems in other regions of the world that use 10 MHz or to adopt the same spectrum sharing solution worldwide."

THE FCC SHOULD ADOPT A REASONABLE TESTING PROCESS THAT EMPHASIZES SAFETY, NOT SPEED.

Panasonic supports the sharing of the 5.9 GHz band on a not-to-interfere basis and with priority to DSRC as a safety service, as long as it can be positively proven that any unlicensed sharing of the band will not impede the safety-of life DSRC functions and as long as it does not require re-channelization. The burden of proof for safe sharing is on those who advocate it, not the current incumbents who have developed DSRC and are launching the future of highway safety and road transportation. The FCC should adopt a rigorous testing schedule that can empirically demonstrate whether spectrum sharing can be safely implemented.

CONCLUSION

For the reasons stated in these Comments to Refresh the Record, Panasonic strongly encourages the FCC to preserve and promote the use of DSRC, as a safety service, in the 5.9 GHz band according to the current FCC channel plan. Altering the use of the 5.9 GHz band or its channel plan will derail or seriously delay the crucial work that has been done to bring V2X into reality just when it is on the cusp of widespread deployment.

Panasonic supports the use of sharing technologies in the 5.9 GHz band only if they can be proven safe and without harmful interference with DSRC safety-of-life functions in all channels according to the current channel plan. The burden of proof that sharing will not cause harmful interference should be placed on those entities who want to share the spectrum, and any additional testing of sharing technologies should be concluded quickly. It would not be in the public interest to further delay the deployment of DSRC and its transformative benefits for public safety and transportation efficiency.

Respectfully submitted,

PANASONIC CORPORATION OF NORTH AMERICA

By: /s/ Paul G. Schomburg

Paul G. Schomburg
Director, Government & Public Affairs
Panasonic Corporation of North America of North America
1130 Connecticut Ave, N.W., Suite 1100
Washington, DC 20036
(202) 912-3800